

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goetzke et al (US 5,328,094).

In regard to Claims 1, 9 and 14, Goetzke et al teach a fuel distribution system for an internal combustion engine having a pump (27), an injector (10), a fuel conduit (37) in a body (11), fluidly connecting the pump (27) to the injector (10), the fuel conduit (37) is adapted for delivery of fuel at high pressure, having a first passageway (37) with a first longitudinal axis (axis of "37") and a second passageway (passageway of "16") with a second longitudinal axis (axis in passage of "16") wherein the first and second longitudinal axes intersect at an angle other than 180 degrees and an enlarged cavity (see cavity at intersection between "37" and the passageway of "16" in Figure 2) defines the intersection of the first and second passageways, having a geometry representing roughly the cross section of one of the first and second passageways at any angle (the geometry of the first and second passageways if cylindrical along with the enlarged

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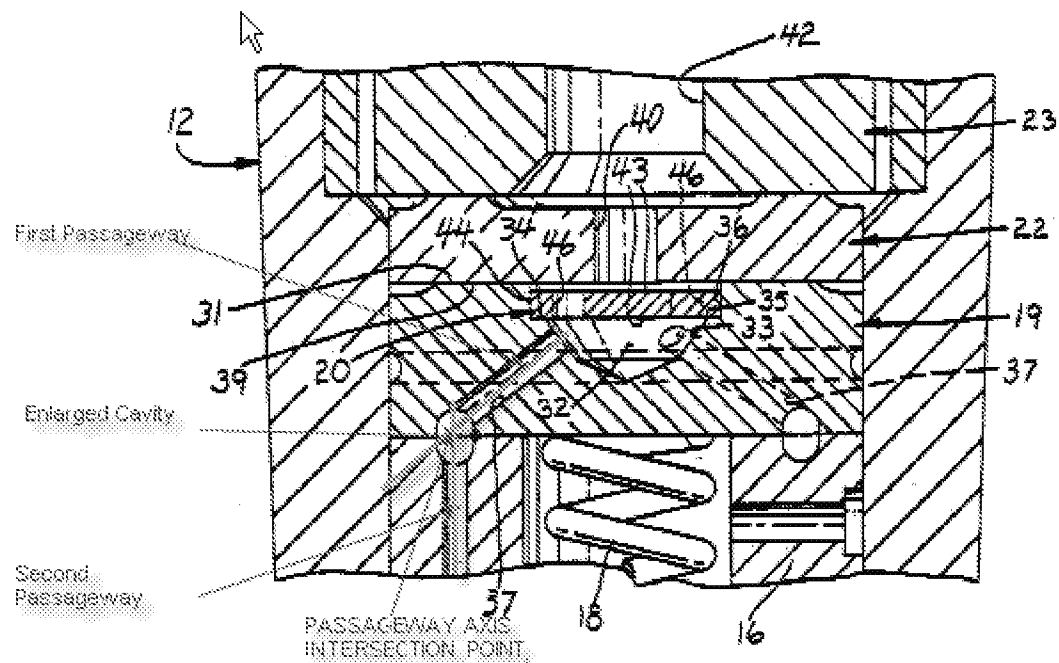
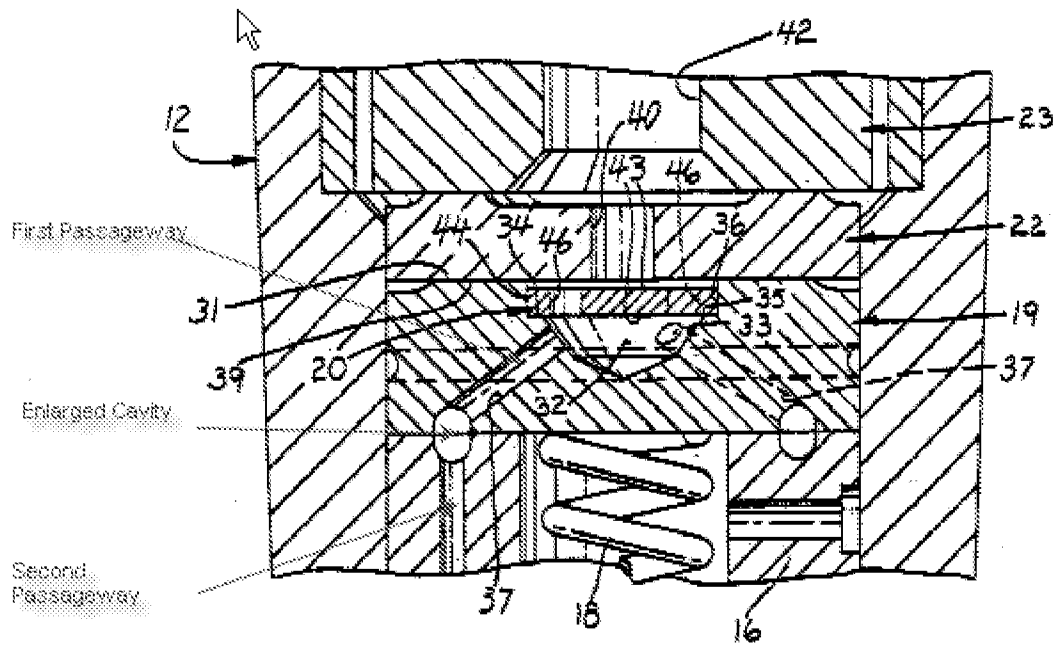
cavity as shown in Figure , and having a center point at the intersection of the first and second longitudinal axes (see Figure #2 below where the intersection points of each the first and second passageways is at a symmetrical center line of the enlarged cavity that is formed therebetween as shown in Figure 2 of Goetzke et al.).

Although Goetzke et al substantially teaches the present invention it fails to teach where the fuel injector is made of a one-piece body and where the cavity is entirely within the one-piece body.

However, it would have been obvious to one having ordinary skill in the art at the time the present invention was made to have made the fuel injector body of Goetzke into a single one piece body unit where the enlarged cavity is located entirely in the one-piece body, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art and Applicant does not further provide any benefit for having a one-piece body as a criticality for the present invention.

In regard to Claims 2-5, 10-13 and 15-19, Goetzke et al also teach where the enlarged cavity is generally spherically shaped, the diameter of the enlarged cavity is at least twice the cross sectional diameter of one of the first and second passageways where the angle is about ("about" is viewed as a broad term) 90 degrees and the diameter of the enlarged cavity is at least twice the cross sectional diameter of one of the first and second passageways.

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Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rix et al (US 5,192,026) in view of Shade et al (US 3,006,556).

In regard to Claim 6, Rix et al teach a method of manufacturing a one-piece body having a conduit with a first passageway having a first longitudinal axis and a second passageway having a second longitudinal axis wherein the first and second longitudinal axes intersect at an angle other than 180 degrees, and an enlarged cavity having a center point at the intersection of the first and second longitudinal axes, comprising the step of utilizing electrochemical machining to remove material from the walls of the first and second passageways adjacent the intersection of the first and second longitudinal axes until the enlarged cavity entirely within the one-piece body, defining the intersection of the first and second passageways, having a geometry representing roughly the cross section of one of the first and second passageways at any angle and having a center point at the intersection of the first and second longitudinal axes is formed (see column 2, lines 1-21).

Although Rix et al substantially teach the present invention (Examiner notes that Rix et al does have conduits that intersect, however Rix et al. is silent to how the conduits are formed in the fuel injector body.) with the exception of drilling the first passageway into the body along a first longitudinal axis and drilling a second passageway into the body along the second longitudinal axis until the second longitudinal axis intersects the first longitudinal axis.

However, Shade et al teach where first and second passageways having first and second longitudinal axes are formed by drilling into a fuel injector body.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the present invention was made to have formed the first and second passageways of Rix et al with the drilling process taught by Shade et al in order to provide a manner in which the two passageways can be angled more obliquely.

In regard to Claims 7 and 8, the combined device of Rix et al in view of Shade et al teach a method of manufacturing where the step of electrochemical machining includes removing material substantially evenly in all directions to form a substantially spherical cavity and where removing material in all directions until the diameter of the cavity is twice the diameter of the one of the first and second passageways (see column 2, lines 1-21; emphasis on lines 17-21 in regard to increasing the diameter where the radius of the intersecting walls can be increased as desired by a user.).

### ***Response to Arguments***

#### **Rejection under 35 USC § 103**

Applicant's arguments filed 04/06/2010 have been fully considered but they are not persuasive. Examiner cannot agree with Applicant's assertions that making separate two or three piece parts integral into a single piece is not obvious. Making parts integral to avoid gaps in space and the like is clearly within the level of one having ordinary skill and does not argue persuasive enough to show that it is not within the level of one having ordinary skill to make pieces that are separate into a one-piece

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body. Examiner also contends that the intersection of Goetzke conduits is at an intersection point that is a center point of the enlarged cavity. As shown in the second Figure provided above, the intersection point of both axes is located at a center line of the enlarged cavity when viewing the enlarged cavity symmetrically. The a point on the center longitudinal axis of the enlarged cavity has a common point with the axes point of intersection. Thus, the point of intersection of the axes is at a center of the enlarged cavity. It can also be seen that the geometry of the first and second passageways is cylindrical and is identically to the cylindrical geometry of the enlarged cavity (e.g. both the passageways and the enlarged cavity have cylindrical geometry's). Furthermore, from the figures provided above, it can be clearly shown that the intersection points of the passageways in the cavity do in fact have an intersection point within the cavity and angles other than 90 and 180 degrees. Examiner suggests better reciting the claimed invention in a manner that better captures the inventive features so that the inventive concept is evident.

With regard to the Rix et al reference, Examiner cannot agree with Applicant's arguments. As clearly shown in column 2, lines 1-21, Rix et al teach having longitudinal axes of conduits that intersect at a center within a cavity of a one piece body.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trevor E. McGraw whose telephone number is (571) 272-7375. The examiner can normally be reached on Monday-Friday (2nd & 4th Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571) 272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/T. E. M./

06/10/2010

Examiner, Art Unit 3752

/Len Tran/

Supervisory Patent Examiner, Art Unit 3752